firemain and foam systems. These curves need not be submitted if the following information is shown on the drawing:

(i) Rated capacity and head at rated capacity.

(ii) Shutoff head.

(iii) Head at 150 percent rated capacity.

(3) Standard drawings of the following fabrication details shall be submitted:

(i) Welding details for piping connections.

(ii) Welding details for nonstandard fittings (when appropriate).

(d–1) Plans of piping for industrial systems on mobile offshore drilling units must be submitted under subpart 58.60 of this subchapter.

(e) Where piping passes through watertight bulkheads and/or fire boundaries, plans of typical details of piping penetrations shall be submitted.

(f) Arrangement drawings specified in paragraph (c)(2) of this section are not required if—

(1) The location of each component for which there is a location requirement (i.e., shell penetration, fire station, foam monitor, etc.) is indicated on the piping diagram;

(2) The diagram includes, or is accompanied by and makes reference to, a material schedule which describes components in sufficient detail to substantiate their compliance with the regulations of this subchapter;

(3) A thermal stress analysis is not required; and

(4) A dynamic analysis is neither required nor elected in lieu of allowable stress reduction.

[CGFR 68–82, 33 FR 18843, Dec. 18, 1968, as amended by CGFR 69–127, 35 FR 9978, June 17, 1970; CGFR 72–59R, 37 FR 6189, Mar. 25, 1972; CGD 73–251, 43 FR 56799, Dec. 4, 1978, CGD 77–140, 54 FR 40602, Oct. 2, 1989; CGD 95–012, 60 FR 48049, Sept. 18, 1995]

Subpart 56.04—Piping Classification

§ 56.04–1 Scope.

Piping shall be classified as shown in Table 56.04–1.

TABLE 56.04–1—PIPING CLASSIFICATIONS

Service	Class	Section in this part
Normal	I, II	56.04–2
Low temperature	I-L, II-L	56.50–105

[CGD 72–206R, 38 FR 17229, June 29, 1973, as amended by CGD 77–140, 54 FR 40602, Oct. 2, 1989; CGD 95–012, 60 FR 48049, Sept. 18, 1995]

§ 56.04–2 Piping classification according to service.

The designation of classes according to service is found in Table 56.04–2.

TABLE 56.04–2—PRESSURE PIPING CLASSIFICATION

Service	Class [1]	Pressure (p.s.i.g.)		Temp. (°F)
Class B and C poisons [2]	I	any	and	0 and above.
	I-L	any	and	below 0.
	II	([3])	([3])	([3])
	II-L	([3])	([3])	([3])
Gases and vapors [2]	I	above 150	or	above 650.
	I-L	above 150	and	below 0.
	II	150 and below	and	0 to 650.
	II-L	150 and below	and	below 0.
Liquefied flammable gases [2]	I	above 150	and	0 and above. [1]
	I-L	above 150	and	below 0.
	II	150 and below	and	0 and above.
	II-L	150 and below	and	below 0.
Molten sulphur	I	above 225	or	above 330.
	II	225 and below	and	330 and below.
Cargo liquids Grades A through D [2]	I	above 225	or	above 150.
	I-L	above 225	and	below 0.
	II	225 and below	and	0 to 150.
	II-L	225 and below	and	below 0.
Cargo liquids Grade E	I	above 225	or	above 400.
	I-L	above 225	and	below 0.
	II	225 and below	and	0 to 400.
	II-L	225 and below	and	below 0.

TABLE 56.04–2—PRESSURE PIPING CLASSIFICATION—Continued

Service	Class [1]	Pressure (p.s.i.g.)		Temp. (°F)
Water	I	above 225	or	above 350.
	II	225 and below	and	350 and below.
Fuels (Bunker, diesel, gasoline, etc.)	I	above 150	or	above 150.
	II	150 and below	and	150 and below.
Lubricating oil	I	above 225	or	above 400.
	II	225 and below	and	400 and below.
Asphalt	I	above 225	or	above 400.
	II	225 and below	and	400 and below.
Heat transfer oil	I	above 225	or	above 400.
	II	225 and below	and	400 and below.
Hydraulic fluid	I	above 225	or	above 400.
	II	225 and below	and	400 and below.
Flammable or combustible dangerous cargoes.	Refer to specific requirements of part 40 of this chapter.			
Other dangerous cargoes.	Refer to specific requirements of part 98 of this chapter.			

[1] Where doubt exists as to proper classification, refer to the Commandant for resolution.
[2] For definitions, see 46 CFR parts 30, 151, and 154. Note that the category ''B and C'' poisons is not used in the rules applying to self-propelled vessels (46 CFR part 153).
[3] Not permitted except inside cargo tanks approved for Class B and C poisons.

[CGFR 68–82, 33 FR 18843, Dec. 18, 1968, as amended by CGD 73–254, 40 FR 40164, Sept. 2, 1975; CGD 73–96, 42 FR 49024, Sept. 26, 1977]

§ 56.04–10 Other systems.

Piping systems and appurtenances not requiring plan approval may be accepted by the marine inspector if:

(a) The system is suitable for the service intended,

(b) There are guards, shields, insulation and similar devices where needed for protection of personnel,

(c) Failure of the systems would not hazard the vessel, personnel or vital systems, and

(d) The system is not manifestly unsafe.

[CGD 77–140, 54 FR 40602, Oct. 2, 1989]

Subpart 56.07—Design

§ 56.07–5 Definitions (modifies 100.2).

(a) *Piping*. The definitions contained in 100.2 of ANSI-B31.1 apply, as well as the following:

(1) The word *piping* within the meaning of the regulations in this subchapter refers to fabricated pipes or tubes with flanges and fittings attached, for use in the conveyance of vapors, gases or liquids, regardless of whether the diameter is measured on the inside or the outside.

(b) *Nominal diameter*. The term *nominal diameter* or *diameter* as used in this part, means the commercial diameter of the piping, i.e., pipe size.

(c) *Schedule*. The word *Schedule* when used in this part refers to specific values as given in American National Standards B36.10 and B36.19.

(d) *Fittings and appurtenances*. The word *fitting* and the phrase *fittings and appurtenances* within the meaning of the regulations in this subchapter refer to pressure containing piping system components other than valves and pipe. This includes piping system components whose function is to join branches of the system (such as tees, wyes, elbows, unions, bushings, etc.) which are referred to as pipe joining fittings, as well as components which operate on the fluid contained in the system (such as traps, drains, strainers, separators, filters, meters, etc.), which are referred to as ''fluid conditioner'' fittings. Thermometer wells and other similar fittings which form part of the pressure barrier of any system are included under this heading. Expansion joints, slip joints, rotary joints, quick disconnect couplings, etc., are referred to as special purpose fittings, and may be subject to such special design and testing requirements as prescribed by the Commandant. Refer to subpart 56.15 for design requirements for fittings.

(e) *Nonstandard fittings*. ''Nonstandard fitting'' means a component